GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA

UNSTARRED QUESTION NO:2984
ANSWERED ON:16.12.2015
Impact of Climate Change
S.R. Shri Vijay Kumar

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether Government has undertaken any study to analyse the impact of global warming and climate change on rainfall pattern in the country;

(b) if so, the details thereof;

(c) whether there has been decline average seasonal rainfall in the country over the last four decades; and

(d) if so, the details and the reasons therefor?

Answer

The MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)

(a-b) Yes Madam. Ministry of Environmental and Forests (MoEF), Govt of India had undertaken the Indian second National Communication to UNFCCC during 2009-2011(NATCOM-II). The communication had been a national effort which involved many multi-disciplinary scientific groups. Ministry of Earth Sciences and its institutions carry out scientific studies on climate change and variability under Global and Regional Climate Change (GRCC) programme. Under GRCC programme of the Ministry of Earth Sciences, Earth System Science organisation (ESSO) has established a dedicated Centre for Climate Change Research (CCCR) under the Indian Institute of Tropical Meteorology (IITM), Pune.

Monsoon rainfall varies on different spatial and temporal scales. Extreme rainfall events that occur at some isolated places (viz. heavy rainfall over Mumbai or in other parts) are highly localized and are largely part of the natural variability of the Indian monsoon system itself. Although, some recent studies suggest an increasing frequency and intensity of extremes in rainfall during the past 40-50 years, their attribution to global warming is yet to be established. Moreover, the report of the Inter- governmental Panel on Climate Change (IPCC) and our country"s own assessment using regional climate models indicate that the extreme rainfall events are likely to be more frequent in the later part of the 21st century in the world including India.

Although, the monsoon rainfall at all India level does not show any trend, areas of increasing and decreasing trends at regional level are discerned. It is not clear if this increasing trend in the heavy rainfall events is attributable to global warming. Summary of the observed long term changes so far include:

(i) Mean annual surface air temperatures show a significant warming of about 0.7 degree C/100 years during the last century.
(ii) No significant long-term trends are reported in the frequencies of large-scale droughts or floods in the summer monsoon season.

(c-d) The average seasonal rainfall over India has shown decline in the last four decades, especially after 1970, that is not found to be statistically significant. Further over the core monsoon zone, the contribution from increasing heavy rain events is offset by decreasing moderate events and hence on the long term the change in seasonal rainfall is not appreciable.